

# **Spot Safety Project Evaluation**

Project Log # 200512201

Spot Safety Project # 12-01-208

**Spot Safety Project Evaluation of the Installation of 1,200 Feet of Concrete Median On the Eastern  
Leg of US 29/74 (Franklin Blvd) At Its Intersection with NC 279 (New Hope Rd)  
Gaston County**

Documents Prepared By:

Safety Evaluation Group  
Traffic Safety Systems Management Section  
Traffic Engineering and Safety Systems Branch  
North Carolina Department of Transportation

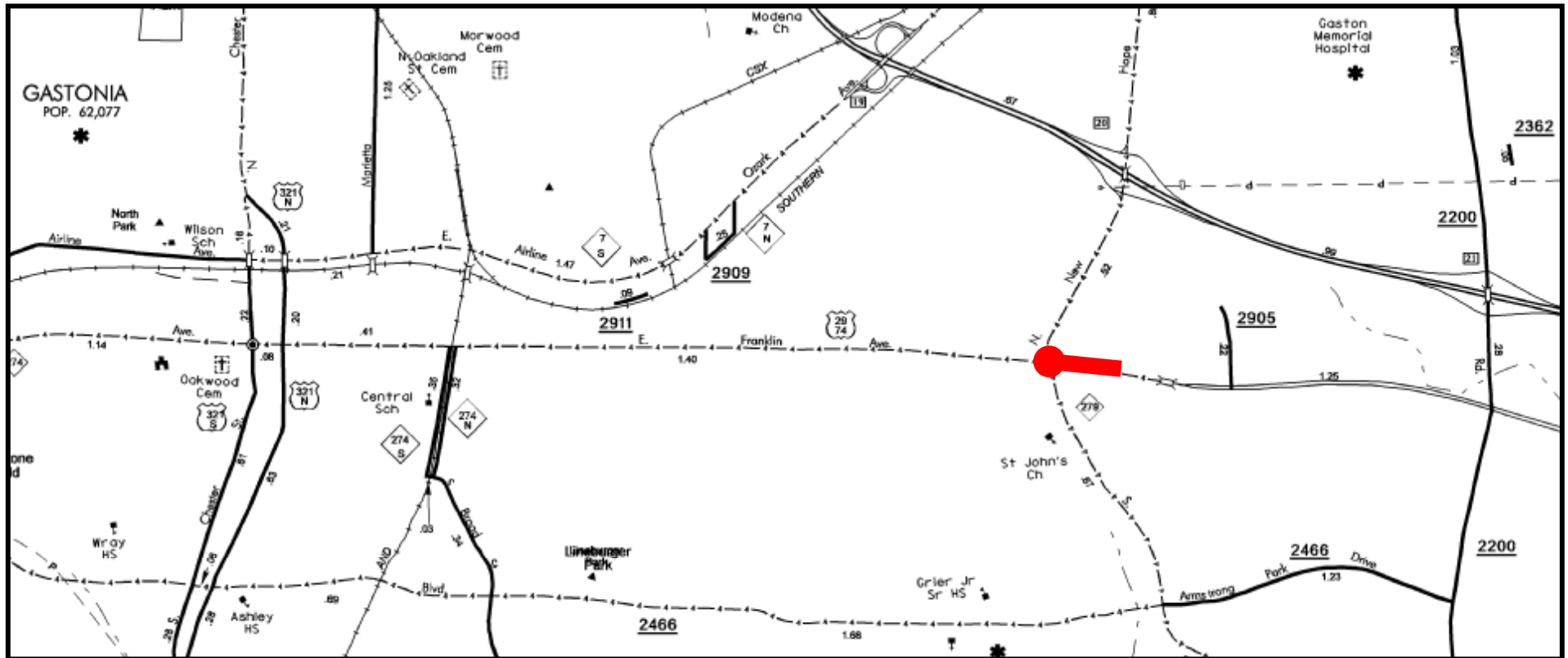
**Principal Investigator**

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Brad Robinson, EI

Traffic Safety Project Engineer

11/21/2006  
Date

**Location Map  
Gaston County  
Evaluation of Spot Safety Project #12-01-208**



**Treatment Location: US 29/74 (Franklin Blvd), From Its Intersection with NC 279 (New Hope Rd) to its Intersection With Aberdeen Blvd**

# ***Spot Safety Project Evaluation Documentation***

## **Subject Location**

Evaluation of Spot Safety Project Number 12-01-208 – US 29/74 (Franklin Blvd) and NC 279 (New Hope Rd) in Gaston County.

## **Project Information and Background from the Project File Folder**

The spot safety project improvement countermeasure chosen for the subject location was the installation of 1,200 linear feet of concrete median on the eastern leg of US 29/74 (Franklin Blvd) at its intersection with NC 279 (New Hope Rd). US 29/74 was a multilane undivided highway at the subject location prior to the project. Please see the *Collision Diagrams* for a drawing of US 29/74 at the subject location.

There are several commercial properties just east of NC 274 that have access to US 29/74 on the northern side. The initial statement of problem was that eastbound vehicles were making left turns across oncoming traffic and being struck or being rear-ended as they were waiting for traffic to clear. The initial crash analysis was conducted from January 1, 1998 to December 31, 2000 and included 36 crashes that were deemed correctable; 30 Rear-End Crashes and six (6) Left-Turn Crashes.

The final completion date for the improvement at the subject intersection was on October 27, 2001 with a total cost of \$50,000.

## **Naive Before and After Analysis**

After reviewing the spot safety project file folder along with all the crashes at the subject location, the crash data omitted from this analysis to consider for an adequate construction period was from September 1, 2001 through November 30, 2001. The before period consisted of reported crashes from March 1, 1997 through August 31, 2001 (4 years, 6 months) and the after period consisted of reported crashes from December 1, 2001 through May 31, 2006 (4 years, 6 months). The ending date for this analysis was determined by the available crash data at the time the crash analysis was completed.

The treatment data consisted of all crashes on US 29/74 from NC 279 to the westbound on-ramp from Aberdeen Blvd, a distance of approximately 1,000 feet. The treatment data excluded 200 feet of the project east of the westbound Aberdeen Blvd on ramp after reviewing crash reports and determining that no target crashes occurred east of Aberdeen Blvd. *Please see attached location map and aerial photo for further details.*

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that Target Crashes consisted of crashes involving left-turning eastbound traffic and traffic using the commercial driveways north of US 29/74. These included the following;

- Left Turn-Same Roadway Crashes involving left turning vehicles on eastbound US 29/74.
- Angle and Left Turn-Different Roadway Crashes involving vehicles turning left out of the commercial driveways
- Rear-End Crashes on eastbound US 29/74 in the far-left lane

<b>Treatment Information</b>			
	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Total crashes	89	51	-42.7
Total Severity Index	4.82	3.32	-31.1
Target Crashes	55	0	-100.0
Target Crashes Severity Index	5.31	N/A	N/A
Volume	43,700	42,000	-3.9

<b>Injury Summary</b>			
	<b>Before</b>	<b>After</b>	<b>Percent Reduction (-) Percent Increase (+)</b>
Fatal Injuries	0	0	N/A
Class A Injuries	0	0	N/A
Class B Injuries	7	3	-57.1
Class C Injuries	72	21	-70.8
Total Injuries	79	24	-69.6

The naive before and after analysis at the treatment location resulted in a 43 percent decrease in Total Crashes, a 31 percent decrease in the Total Severity Index, and a 100 percent decrease in Target Crashes. The before period ADT year was 1999 and the after period ADT year was 2004.

## Results and Discussion

The naive before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in a 43 percent decrease in Total Crashes, a 31 percent decrease in the Total Severity Index, and a 100 percent decrease in Target Crashes. The summary results above demonstrate that the treatment location appears to have had a decrease in both Total Crashes and Target Crashes from the before to the after period.

Referencing the *Collision Diagrams* and the previous table, it is apparent that the installation of the concrete median helped reduce crashes in the study area. In the before period there were 41 Rear-

End crashes that occurred in the far-left eastbound lane of US 29/74. There are none in the after period. Also in the before period there were eight (8) Left Turn-Same Roadway Crashes involving eastbound US 29/74 vehicles turning left into the driveways and six (6) Left Turn-Different Roadway Crashes or Angle Crashes involving vehicles turning left out of the driveways. Again, in the after period there were none.

There does not appear to be any new crash patterns created by the concrete median. There is no mention in the crash reports of the median causing or being involved in any after period crashes.

Please see the attached *Treatment Site Photos*. Photos are provided along the subject area.

As the Safety Evaluation Group completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.

Aerial Photo From Gaston County Website



**Treatment Site Photos Taken September 20, 2006**



**Traveling Westbound on US 29/74 (Franklin Blvd)**



**Traveling Westbound on US 29/74 (Franklin Blvd)**





**Traveling Westbound on US 29/74 (Franklin Blvd)**



**On Westbound US 29/74 (Franklin Blvd) at Intersection With NC 279 (New Hope Rd)**





**On Southbound NC 279 (New Hope Rd) looking at Westbound US 29/74**

Gaston County

US 29/74 (Franklin Blvd) and NC 279 (New Hope Rd)

Treatment Site in The Before Period

From 3/1/1997 To 8/31/2001

NC 279 (New Hope Rd)

Jemima St

Payless Shoes

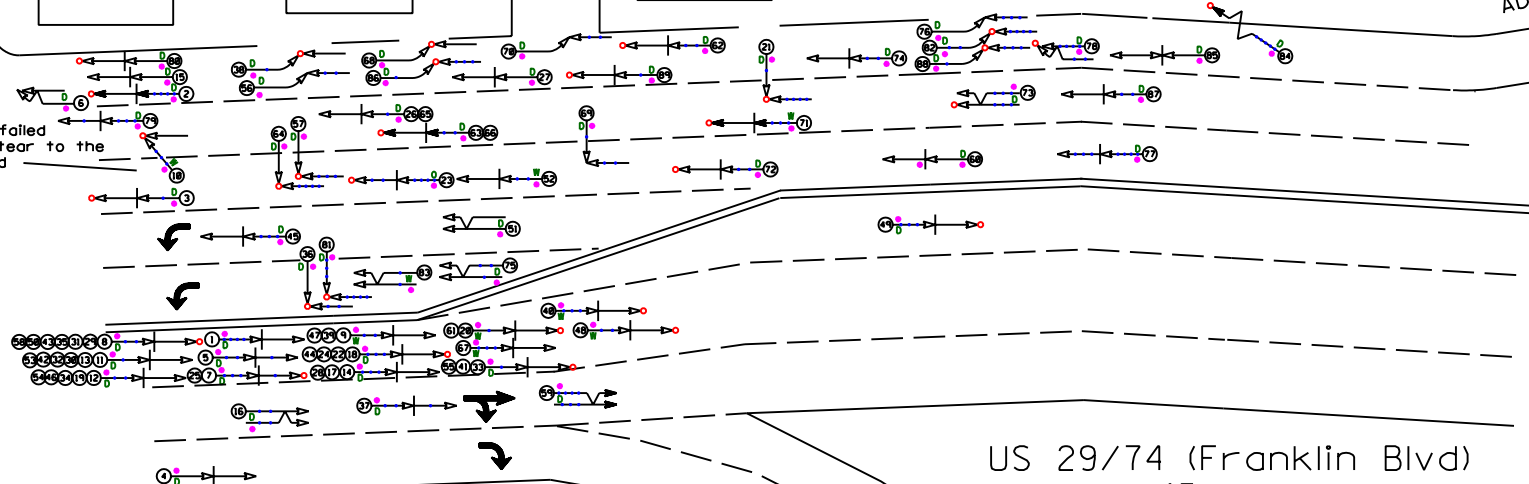
Verizon

GMAC Insurance

Animal Hospital

Aberdeen Blvd

Note: Vehicle's breaks failed and driver tried to steer to the right side of the road



US 29/74 (Franklin Blvd)  
45 mph

O' Charlies

Aberdeen Blvd

NC 279 (New Hope Rd)

### LEGEND

	MOVING VEHICLE		ANGLE		9 MPH OR LESS		P PEDESTRIAN
	PEDESTRIAN		TURNING		10 MPH TO 19		T TRAIN
	PAKED VEHICLE		BACKING		20 MPH TO 29		D DRIVER AT FAULT
	PAKED VEHICLE		BACKING		30 MPH TO 39		D DRY
	FIXED OBJECT		BACKING		40 MPH TO 49		W WET
	HEAD ON		BACKING		50 MPH TO 59		I ICE OR SNOW
	REAR END		BACKING		60 MPH TO 69		O ONLY
	RAN OFF ROAD		BACKING		70 AND UP		
			OUT OF CONTROL		SPEED UNKNOWN		
			HARMY				
			FATALITY				

### TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

	<b>COLLISION DIAGRAM</b>
<b>STUDY PERIOD:</b> 3/1/1997-8/31/2001	<b>AREA:</b>
<b>DISTANCE:</b> 1/4 MILE	
<b>ANALYSIS PREPARED BY:</b> B. Robinson	
<b>ANALYSIS CHECKED BY:</b>	
<b>DIAGRAM PREPARED BY:</b> B. Robinson	
<b>DIAGRAM REVIEWED BY:</b>	
<b>SCALE:</b> NOT TO SCALE	
<b>DATE:</b> September 2006	
<b>LOG NUMBER:</b> 20050220	

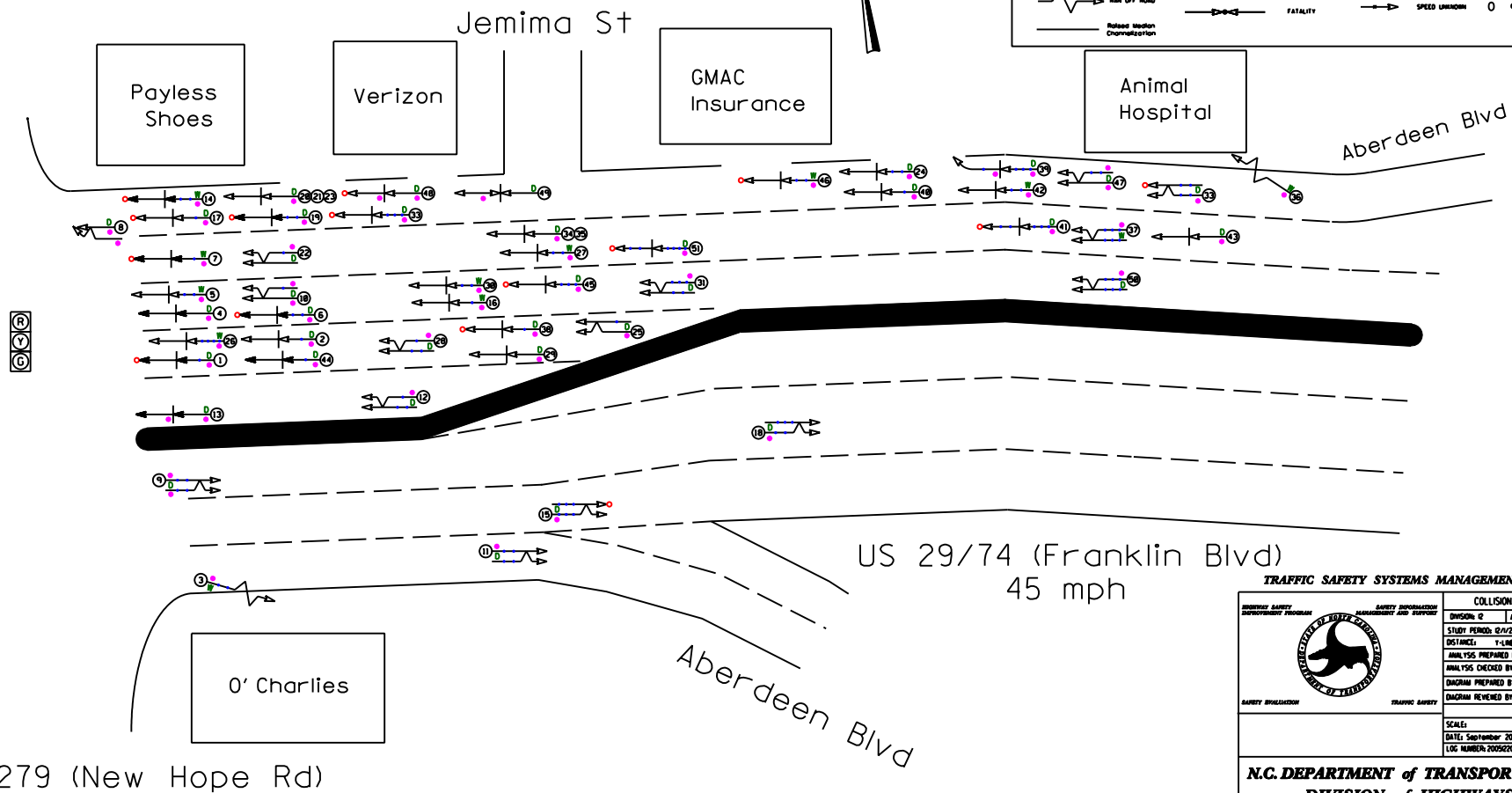
**N.C. DEPARTMENT of TRANSPORTATION**  
**DIVISION of HIGHWAYS**  
**TRAFFIC ENGINEERING AND SAFETY**  
**SYSTEMS BRANCH**

Gaston County

US 29/74 (Franklin Blvd) and NC 279 (New Hope Rd)

Treatment Site in The After Period

From 12/1/2001 To 5/31/2006



TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

COLLISION DIAGRAM	
DIVISION 12	AREA
STUDY PERIOD	01/2005-05/2006
DISTRICT	TYLER - 1001
ANALYSIS PREPARED BY	B. Robinson
ANALYSIS CHECKED BY	B. Robinson
DIAGRAM PREPARED BY	B. Robinson
DIAGRAM REVIEWED BY	
SCALE:	NOT TO SCALE
DATE:	September 2006
LOG NUMBER:	20050220

**N.C. DEPARTMENT of TRANSPORTATION**  
**DIVISION of HIGHWAYS**  
**TRAFFIC ENGINEERING AND SAFETY**  
**SYSTEMS BRANCH**